

313 Wood is chosen for its degree of hardness and weight and also for its shape according to the purposes of the object to be made. The main forms used are (1) long, slender, light (or heavy) shafts; (2) hollow logs; (3) roots with a well-defined arc; (4) long, straight, slender trunks with thick roots running off at a right angle from the shaft; (5) forked sticks; (6) ends of branches with many twigs and leaves; (7) any variety of dry wood; and (8) very large light wood tree trunks.

314 Three types of bark are used: (1) a long, thick, wide type found on the trunk of the larger eucalyptus; (2) thin paper-like bark from the Melaleuca; and (3) long thin fibers of root bark easily macerated.

[252] Many varieties of leaves are technological material. They are usually gathered in bundles by breaking off branches, but one large-leaved species is used singly as a plate on which to put fresh meat for cooking.

The long reeds of the water-lily ponds, spear grass particularly, and many other varieties of reeds are utilized.

237 The few animal materials used are, from land animals: kangaroo fat, kangaroo gut, kangaroo leg bones, bird feathers, bird bones (particularly leg), opossum fur, opossum gut and human hair; from sea animals: sting-ray prongs, fish and shark vertebrae, bivalve shells, and the melon shell.

317 Deposits of red ocher and pipe clay are mined along certain portions of the seacoast. Yellow ocher is found in outcroppings. Round river

316 stones about the size of goose eggs are gathered. Diorite stones are also used. Quartzite is quarried from outcroppings. Ordinary earth and sand are used in making houses and ceremonial objects on the ground. Rock

342 ledges forming caves are utilized as shelters during the rainy season.

312 Rock basins which catch rain water are used as types of primitive cisterns to supply water in the absence of wells and fresh-water courses.

3. *General Description of Technical Methods Used in Making Raw Materials into Cultural Artifacts*

000 Only the general methods by which raw material is formed into artifacts will be discussed here. Each specific technique will be described in the section dealing with the articles manufactured.

412 The chief tools used with food are the ground stone axe,⁴ a knife (formerly made of bone, but, since the Malay contacts, of iron), and a variety of bivalve shell.

322 Cylindrical wooden articles are made by cutting down a tree or

⁴ The iron tomahawk is now used in its place.

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limb of the right size, hacking and pulling off the outer and inner bark with the axe and fingers, and then scraping the wood to the proper size with the axe and unhafsted bivalve shell. 322 ●

Flat wooden artifacts are formed by first splitting the cylinder in half and then splitting off a segment from the flat inner surface. Axe and shell are then used to hew the wood into the proper shape.

Hollow cylindrical objects are made by cutting down a tree eaten out by white ants, stripping outer and inner bark from it, and then cutting and scraping it with axe and shell to the form desired.

Bark Technique.—To remove thick bark from the trunk of a tree, 314 a cut is made around the bottom of the tree, and another just below the forks of the tree. A split is then made with the axe down the side of the tree from top to the bottom and the bark pulled from the trunk. The outer bark is then stripped off. Processes vary from here on according to the artifact to be manufactured. The bark may be soaked in water or heated to bend it to the shape desired; sometimes, as in house building, only pressure is applied to it.

Paper bark (*Melaleuca*), the thin white bark of the ti tree found in Arnhem Land in the swamps and where the ground is moist the year round, is used in a number of ways. It is usually removed from the tree by taking the handle end of the spear-thrower and inserting it until it hits the trunk of the tree, then pulling down upon it in the same way that a knife would be used. Along the seacoast this bark does not enter so much into the culture as in the more distant interior, since sea shells offer better material for containers, largely because they are more easily prepared for use than the vegetable material.

Paper bark is used for water and honey containers, as a ladle for dipping water from the well, for pubic covering, mats, "blankets," cigarette paper, exterior covering for houses, tinder material for starting fire, the core of many totemic emblems, the "dunce cap" of the Gunabibi ceremony, and for many other daily uses.

Stone Technique.—The Murngin go to the interior for their spear 324 heads and stone knives, or obtain them in trade. The techniques used are the same as those described in Spencer and Gillen's *Arunta*.⁸

Cements.—The Murngin have four varieties of adhesives. Ironwood 314 resin is the principal cement used. The roots of the ironwood tree are cut into strips a few feet in length and heated over a fire. The sap is scraped from the sticks and collected on a central wooden core where it cools and hardens. When wanted for use it is heated again in a

⁸ Spencer and Gillen, *The Arunta*, Macmillan, London, 1927, pp. 340-348.

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314 small fire. It is used to haft wooden spear heads to their shafts, to articulate the peg of the spear-thrower to the shaft, and also to haft the feathers of some of the larger headdresses to a wooden or bone shaft.

237 Beeswax is used to join the stone spear head to the shaft, it serves as the core for the various feather headdresses, it is used to make the mouth of the wooden trumpet small enough to fit the lips, and at times it is used as calking material for boats. It is also pushed into the hole always made in the septum to give the nose, for purely aesthetic reasons, a very concave form. (If beeswax is not used, small rings are made by wrapping two ends of cane together with fiber string and inserting them in the hole made in the septum.) When not in use, beeswax is molded into a flat mass and carried in a man's basket.

237 Human blood or the sap of an orchid bulb (djelkork) is used to glue feathers and paint to the dancers' bodies for the various ceremonies, and to stick these same materials on their totemic emblems. When the bulb is used, it is chewed and the macerated end rubbed on the object to be decorated.

314 322 *Huſting*.—Wooden objects to be hafted together are always carved to fit nicely. Ironwood resin or beeswax is heated and applied to the parts, which are then fitted together and wrapped with fiber string.

III. MURNGIN ARTIFACTS

000 In the last few pages we have briefly described the Murngin in relation to their natural environment, the kinds of materials they select from the environment, and the more general techniques used in fashioning their tools. In Appendix II, pages 471-505, we shall describe the various articles of the technology and their manufacture.

182 Murngin technology is forever subject to two fundamental changes: first, the constant movements from food ground to food ground, and, secondly and more radically, the exigencies of the alternate rainy and more favorable dry seasons. Both are essentially problems of environmental adaptation: the one involves the adjustment of man to his food supply rather than vice versa through an agricultural or pastoral economy; and the other is an adjustment to a semi-annual seasonal change which can best be stated in terms of fifty to sixty inches of rain during three or four months and none at all during the rest of the year. These adjustments have profoundly and fundamentally affected Murngin technology and, as we shall see later, their ritual and myth.

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252 This type of earth oven is made only for cooking larger animals. Fish, except minnows, are cooked on the open fire; minnows are carefully wrapped in paper bark and placed in the ash of a camp fire for cooking. A camp fire ordinarily used for cooking purposes is always made on a layer of earth taken from the nest of an ant bed. This earth is a kind of clay and holds its warmth longer.

Sometimes ground-fires for cooking are made by heaping a pile of stones in a hollowed-out spot and building a fire on them. After the stones are hot, paper bark and leaves are placed on them, the chunks of meat put in with bark and leaves over them, and the whole covered with sand and allowed to steam.

373 Pandanus palms are lighted to make a beacon for parties of canoes traveling at night in friendly country. They are also fired for certain totemic ceremonies.

322 To straighten a spear shaft, it is heated until the outside is smoked, then the maker holds the part of the shaft that is to be straightened between his two hands, places it against his knee, foot, or in his mouth, and pulls upon it. This process is repeated until, sighting along the shaft, it is seen to be straight.

304 Scarifications are made by pressing burning brands against the skin until the inner skin is burned through and a large welt formed. Ash is put inside the burn.⁴

412 *Stone Axe.*—All axes are of the ground-stone variety in this district, as they are everywhere throughout Australia except in the southwest.

They are made usually from smooth river stones. They normally weigh two and a quarter to three pounds, and vary from three to five inches in length, from two and one-half to four and one-half inches in width, and about one-half to one and a half inches in thickness at the larger end. The [324] axes are convex on both sides. The hafted end is usually slightly flaked to make a rough surface.

The stone blade is hafted to a wooden handle in the following manner: a small pliable stick is flattened on one side and bent in the middle so that the two ends meet. The axe head at the hafting end has been covered with beeswax. The stick is bent over the head and wrapped tightly with fiber string near the stone blade to hold it in place. Sometimes a pandanus circlet is plaited about the hafting instead of cord being used.

[324] The stone is ground to a sharp edge. The surface sometimes is ground only along the edge, but usually grinding extends to the border of the portion covered by the beeswax.

The handle is from ten to sixteen inches in length, but the norm is thirteen inches.

177 The Malays brought the steel axe for trading purposes and the white man has continued this process, so that the stone axe is seldom made today.

⁴ Scarification is also produced by cutting.

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grinding stone. The latter is a flat stone about five inches by one-half to one inch. Both are painted.

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Bull Roarers.—Bull roarers are always made by older men. A flat slip of wood is first hacked out of a piece of eucalyptus into a rectangular shape. It is then whittled down into a thin sword-shaped instrument and given a smooth surface. If the bull roarer is not sufficiently straight to suit the maker, he heats it over a small fire, puts it into the fork of a tree and straightens it by applying pressure.

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For decorating the bull roarer the wood is first given a covering of the juice from a macerated orchid bulb. Red ocher is then rubbed over the entire surface and a white clay snake design traced down each side. Often human blood is smeared over the snake design as an adhesive for white bush cotton or feathers. Sometimes the entire surface of the bull roarer is covered with feathers or cotton and the snake design traced with blood down each side of the instrument. A long rope of human hair is attached for the purpose of whirling the bull roarer about the user's head.

There are two types of bull roarers.

Type I. Mandelprindi.—This is a flat, leaf-shaped instrument, slightly convex on both sides, with a hole in the narrower end for the insertion of two strands of hair string. The hair string is eight to ten feet long and is tied at the other end to a cylindrical handle twenty-six inches in length and two inches in diameter. The whole of the blade of the bull roarer is covered with red ocher or human blood, and painted. It also has birds' down on it.

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The mandelprindi is whirled by the natives during the Gunabibi ceremony and is supposed to be the thunder which is the voice of the Great Snake totem.

Measurements:

Length: three-foot norm; variation six inches.

Width: three inches, widest part; one inch, narrowest part.

Type II. Paddle or Bird Type of Bull Roarer.—This form has the same shape as a paddle with a rounded end. It is slightly larger than the other bull roarer. It is looked upon as entirely different from mandelprindi, and its sound is supposed to be the voice of a bird. A hole is bored in the cylindrical handle to receive the end of the hair string.

Banitja.—These sacred sound-producing objects are long graduated strips of paper bark wrapped with pandanus fiber and covered with red ocher. They are used to beat the ground to warn and frighten women away from the ceremonial ground. They measure three feet by four inches by two inches.

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Yermerlindi.—Two saplings are cut down and tied together. They are padded with grass and tied with filer string. The front half of the surface thus produced is covered with paper bark and rewrapped with thick filer string. The surface of the paper bark is covered with human blood and

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[78] The aborigines told me that, prior to the visit of Mr and Mrs Berndt to Yirrkalla during 1947, they had not carved these small heads. But when they made one and showed it to Mr and Mrs Berndt, the interest shown stimulated them to make more.²³ These little examples of aboriginal craftsmanship, many showing evidence of considerable skill, prove the ability of the aboriginal craftsmen to adapt themselves to changing conditions.

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114 *Function.* Elkin and the Berndts²⁴ state that the carved figures they illustrate of 'the Elder Wauwelak Sister, the Great Laitjung, and Laitjung's son Banaitja' are shown only to initiated men. They write: 'The original artist who has made the figure enters the hut; outside, the postulants are sitting or standing with faces turned away, but when the songman begins to clap his sticks, they are led up to look upon the sacred object. Finally, when the singing is completed, the design on the figure are explained and discussed. At times, during the showing of the object, the figure may be held ritually by an actor who writhes on the ground like the python who swallowed the Wauwelak sisters.'

During my last visit to Yirrkalla (1952) I questioned the aborigines about these statements. The men of both moieties were emphatic that they were incorrect and that the carved figures they had produced for Mr Berndt and me are purely secular and would not be used in any of the secret rituals.²⁵

They explained, however, that pole figures (similar to the Chaseling figure) representing *Djungkoo* and his sister *Madulait* are kept in special huts near the ceremonial grounds where the *Djungkoo* ceremonies are being performed. The figure of *Djungkoo* is shown to all the initiated men, but that of *Madulait* to only a few of the older tribal leaders.

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778 The pole figures of *Djungkoo* and *Madulait* are carved in hard wood, painted with the appropriate designs and decorated with *dua* ceremonial string. At the completion of the rituals the string is removed for future use and the posts, with other sacred objects, buried in the mud of a sacred waterhole.²⁶ The following year the same figures are taken out, re-painted and re-decorated. They usually last about three years.

*532 The carved figures in my collection, *Tjambural*, *Laitjun*, or even the carved figures of *Djungkoo* and *Madulait*, would not have been used in any sacred ceremonies. They were produced because the native men enjoyed making them and because we were interested.

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222 *Methods of Manufacture.* During the last war there was a large Air Force camp near Yirrkalla where, at one time or another, most of the able-bodied aborigines were employed. During that time the aborigines not only learned the

23. Elkin and the Berndts (1950), Pl. 9, illustrate a number of the carved heads collected by Mr and Mrs Berndt.

24. Elkin and the Berndts (1950), p. 50.

25. Elkin and the Berndts (1950), p. 50, state that the carved heads 'are shown to novices at initiation, and to postulants at ceremonies of revelation'.

26. Warner (1957), p. 326, describes how the sacred objects of the *dua narra* ceremonies (analogous to those of *Djungkoo* at Yirrkalla) are buried in the mud of the sacred totemic waterhole.

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use of steel tools, but acquired for themselves a stock of jungle knives, tomahawks, 532*
wood rasps and files. With these tools the aborigines cut and filed the wooden 177
figures into shape with much dexterity. 322

In sharp contrast to these facts is the account given by Elkin and the Bernhds.²⁷ When describing the manufacture of the carved figures at Yirrkalla, these authors wrote: "The artist chips it [the figure] skillfully with a knife or a broad "shovel-nosed" spear-point. . . . The artist spends several days²⁸ carving in the details and scraping the surface smooth with a knife blade, rough stone or piece of shark's skin "sand paper".

As Mr and Mrs Berndt were at Yirrkalla less than a year previous to our arrival (the Air Force camp at that time had not long been disbanded) the aborigines would then have had as many, if not more, steel tools than at the time of our visit. It is not reasonable therefore to expect that the aborigines would have been using the primitive tools reported by Elkin and the Bernhds.

Tjambuwal, the Thunder-man, and his Ceremonial Objects

Two figures of the mythical thunder-man, *Tjambuwal*, were collected, Pl. 776
130A, B, and Pl. 130E, F; myth, p. 282.

Associated with these carved figures are five ceremonial objects used in the 778
dua ceremonies of the thunder-man. They are: the club, *burungunda* (Pl. 130I), 532*
with which *Tjambuwal* strikes the cliff; the spear, *larapan* (Pl. 130J), with which he spears the rock cod, *akurata*; the club, *barlait* (Pl. 130C), with which he kills the fish; the ceremonial object, *munan* (Pl. 130G, H), symbolizing the loops of clouds, *wulnu*, belonging to the thunder-man; and the yam, *hualku* or *bawal* (Pl. 131E) created from the fragments of the club, *burungunda*.

The symbolism of the designs on the *Tjambuwal* figure, Pl. 130A, B, refers 773*
to the time when, at the beginning of the wet season, he strikes the cliffs at 532*
Jalboa headland (Pl. 91E) with his club and throws the white stones, *mlarik* (Pl. 91F) into the sky. These stones quickly increase in size until they become large cumulus clouds, in which *Tjambuwal* travels from place to place.

The two lines meeting at an angle across the front of the figure (Pl. 130B), and the diagonal lines across the back, symbolize crevices which *Tjambuwal* made in Jalboa headland when he struck it with his club, *burungunda* (Pl. 130I). The vertical lines on the back of the head (Pl. 130A) symbolize falling rain, and the arc-shaped panels on both the back and the front of the figure, the gutters in the distorted rock strata of the cliffs at Jalboa, which were supposedly formed when *Tjambuwal* urinated on the cliff.

The symbolism of the designs on the second figure of *Tjambuwal*, illustrated on Pl. 130E, F, is somewhat different. The spots on the diagonal band across the chest of the figure (Pl. 130E) picture the white stones, *mlarik*, at Jalboa headland (Pl. 91F). The curving lines to the right of this band are cumulus clouds,

27. Elkin and the Bernhds (1935), p. 49.

28. The more expert of the aboriginal craftsmen I saw in 1948 were able to complete and paint a human figure in about seven hours, and a carved head in four.

[Text continues on p. 421]

ARTS, CRAFTS, AND CAMP-SONGS

ingenuity to cut and pound them into spear-heads, knives, and digging-bars. The majority of spears in Arnhem Land are now made from some kind of metal. Galvanized water-piping, and copper and brass fittings from wrecks, are pounded into shape; discarded fuel drums are beaten into knives and spears; nails from floating boxes are sharpened and bent into fishing hooks and harpoons. 325
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Spears are frequently broken, lost, or given away, and consequently nomads are always looking for new spear-hafts. At least twenty varieties are made from wood and stone; the horror in primitive warfare is a spearhead made from a bunch of stingray barbs. Old-time fighting and hunting spears are cut from twelve-foot strips of hardwood and are shaved and smoothed with shells and sharp stones. Spears are seldom naturally straight; the kinks are eliminated by passing them backwards and forwards through a fire. Later they are painted and stabbed upright in the sand beside a wind-break, where they are ready for instant use. 411
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In emergencies spears are made very quickly from the simplest materials. I remember we had a rough trip in heavy seas and blinding rain, till we found shelter behind the Wessel Island, where the boys went ashore to hunt for food. Spears had been washed overboard, and I wondered how they intended to hunt. About dusk they returned with two stingrays and a small shark. I asked how they had caught them, and I was told simply: 'I dived and caught them in my hands.' When the fish were cooking on the coals, the young hunter turned his attention to a few rusty nails in a piece of driftwood; he removed them and straightened them in his teeth. He tied them to the end of a straight stick, and called it a spear. Next morning he caught four two-pound fish with his stick and nails.

Spears are thrown from a 'mangal' or spear-thrower, a